

Diatoms in each strength of preservative were green in color but kept well. Various other algae kept poorly; such as *Zygnema*, *Stigeoclonium*, *Cladophora*, etc.

Copper Chloride-lacto-phenol

In the weaker solutions, but in greater amounts in proportion to the algae, the results were more satisfactory as to plasmolysis, but not so good as to color. In the stronger solutions, the color is fine but the plasmolysis has rendered the algae unusable.

Out of over sixty specimens I have been obliged to throw out more than forty, as I used more of the stronger solution in preserving. Perhaps the difference in water in the two regions might have some effect on the preserving of such material in such media, as in most cases my results tally very indifferently with those of Smith and his associates. To any one making collections of algae I would suggest considerable experimentation before trusting completely in these preservatives.

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REVIEWS

Piper and Beattie's Flora of the Northwest Coast*

One of the most pleasing local floras, both as to contents and as to appearance, is Piper & Beattie's Flora of the Northwest Coast, which appeared in the latter part of 1915. The area covered by the work is the region west of the summit of the Cascade Mountains in the states of Washington, and the northern half of Oregon. This region together with a small part of British Columbia constitutes a very natural area. The southern part of Oregon west of the Cascades, comprising the Umpaqua and Rogue River basins, is left out, as in this region the flora of northern California becomes more and more prevalent. The flora is made up of 1,617 species and subspecies of flowering plants and fernworts, representing 550 genera and 100 families. As the

* Flora of the Northwest Coast, by Charles V. Piper and R. Kent Beattie, published by the authors and issued by the New Era Printing Company, Lancaster, Pennsylvania, November 10, 1915.

authors have both held the chair of botany in the State College of Washington for about a decade each, from 1893-1903 and 1903-1912 respectively, they are well acquainted with the flora, and this is also shown in their book. As is customary nowadays, the book gives a key to families, genera and species, and these keys, as far as can be judged from the limited inspection that could be made, seem to be excellent. The descriptions are in many cases rather short, in fact they average shorter than has been customary in later years, but this fact is by no means any detriment to their use, for the book is intended for the student and the amateur. Long descriptions are always confusing to the student and often exasperating even to the scientist, because in wading through the verbosity of a description of from a quarter of a page to a page and a half, one loses the essential characters of the plant. A short concise description drawn to the point is much better, and this is just one of the good features of the book.

In looking over the treatment of genera and species, one may wonder whether the authors belong to the school of "splitters" or of the "lumpers." We find that such genera as *Juniperus*, *Pinus*, *Brodiaea* (the authors use *Hookera* instead), *Zygadenus*, *Polygonum*, *Saxifraga*, *Tellina*, *Mitella*, *Rubus*, *Hosackia*, *Astragalus*, *Oxalis*, *Cornus*, *Pyrola*, *Rhododendron*, *Lonicera*, *Aplopappus* (the older name *Hoorbeckia* is used), are kept intact and in the same sense as used by the Gray-Watson school, while *Limnorchis*, *Piperia* and *Lysias* are regarded as distinct from *Habenaria*; *Sieversia* from *Geum*; *Dasiphora*, *Argentina* and *Drymocallis* from *Potentilla*; *Sphaerostigma* from *Oenothera*; *Gormannia* from *Sedum*; *Hypopitys* from *Monotropa*; *Harrimanella* from *Cassiope*; *Navarretia* and *Collomia* from *Gilia*; *Cryptanthe* and *Allocarya* from *Eritrichium*; *Orostemma* and *Eucephalus* from *Aster*; and *Euthamia* from *Solidago*. The authors evidently have tried to take the middle road, which is very commendable. However, in a few cases they have not succeeded in doing so. For instance the western *Anticlea* and *Toxicoscordion*, though closely related to each other, are not at all so to the eastern *Zygadenus*; and *Tellina* and *Lithophragma* really belong to two different sections of Saxifragaceae, while on the other hand

Gormannia, *Harrimannella*, *Orostemma*, *Eucephalus* and *Euthamia* are rather weak genera. They have also (following Robinson) included *Oreobroma* in *Lewisia*, which most botanists, including Gray and Watson and Pax, regarded as distinct.

The nomenclature used in the book follows closely the so-called American Code. The most striking diversions from the generic names used by the followers of said code are the following: *Rapuntium Dortmanna* (L.) Presl (1768) is used instead of *Lobelia Dortmanna* L. (1753), when that species evidently is the type of the Linnaean genus *Lobelia*. *Hierochloe* (1810) instead of *Savastana* (1789); *Stellaria* (1753) instead of *Alsine* (1753, page priority); *Oxytropis* (1802) instead of *Aragallus* (1790); *Holodiscus* (1879) instead of *Sericotheca* (1838). Of these, it would be desirable if *Stellaria* and *Oxytropis* could be conserved, as both *Alsine* and *Aragallus* were made up of a mixture of species belonging to different genera and based on characters now not used in characterizing *Stellaria* and *Oxytropis*. To this list should also be added the following: *Carara* (1792) should replace *Coronopus* (Garetn. 1791; not Mill. 1754), and *Cheirinia* should be used instead of *Erysimum*, as the type of the latter genus is *E. officinale* L. (= *Sisymbrium officinale* Scop.).

There is also found another diversion from the American Code, where the authors have at least in some cases followed the so-called Madison amendments to the Rochester Code and let a specific name be supplanted by an older varietal name. The American botanists, after applying these Madison amendments for a couple of years, saw to what difficulties and incongruities these amendments would lead and abolished them. How many such cases are found in the book I do not know, but there appear two in the list of new combinations, viz., *Argentina grandis* (T. & G.) Piper instead of *Argentina pacifica* (Howell) Rydb. and *Juncooides majus* (Hook.) Piper instead of *J. Piperi* Coville.

In those species that really have a common or vernacular name, this name follows the specific one. In other cases where there is none no attempt is made to fabricate a brand new one, which is very sensible.

Page 397 contains a list of new species and subspecies described in the book and of new combinations made in the same.

New species	6
New subspecies	1
New combinations	14
	<hr/>
	21

The book contains xiii + 418 pages, including a glossary and an index, is printed on good paper and clear type, bound in cloth, and the printers can be complimented as well as the authors.

The book will be an excellent guide to the flora of the western slopes of the Cascades, and, without doubt, will be greeted with pleasure by all flower-lovers in the region and to anyone who has the opportunity to visit that part of the Pacific slope. It is technical enough to train the student for the use of more elaborate systematic works, and not at all too technical to be used with advantage in the high-schools. Many of the so-called "flower books" written mostly by young ladies are too "popular" in style to give the student any training in science, and usually so inaccurate and erroneous in their statements that they are in many respects more harmful than useful. The book is conservative enough in the better sense of the word but progressive enough to keep up with the development of taxonomy in the last thirty years. It does not contain any new freak notion concerning limitation of species and nomenclature, as some books lately published on western botany have, but is sane in its treatment. While the reviewer's ideas differ in individual cases from the treatment in the new work, the general impression he has received from the book is most pleasing. The same can be said of two other local floras of the Pacific coast, Abram's Flora of Los Angeles County, California, and Hall's Flora of the Yosemite Valley.

P. A. RYDBERG

Massee's Diseases of Cultivated Plants and Trees*

The first edition of this now well-known textbook of plant diseases was published in 1910. A second edition has recently appeared, printed from the old plates and identical but for the addition of a sixteen-page supplement. In this supplement

* Massee, G. Diseases of Cultivated Plants and Trees. Pp. I-XII + 1-618. Figs. 1-173. Macmillan Co., 1915. Price \$2.25.